

AMENDMENTS TO THE CLAIMS

Please amend claims 13, 14, 17, 18, 19, 20, 27, 29, and 33 and please cancel claims 15, 16, and 28, such that the status of the claims is as follows:

1-12. (Canceled)

13. (Currently amended) A material removal device for lapping a bar comprising a plurality of sliders, the material removal device comprising:

~~means for sensing an electrical response of a height of each magnetoresistive element on each slider on the bar;~~

means for applying a magnetic field to the bar;

means for applying a bias current to a magnetoresistive element on each slider on the bar;

means for sensing an electrical response of each of the magnetoresistive elements to the magnetic field, the electrical response changing as a function of height of the magnetoresistive element producing the electrical response; and

means for controlling [[the]] material removal ~~device~~ based on the sensed electrical response[[s]] of each magneto-resistive element to achieve a target height for each magnetoresistive element on each slider on the bar.

14. (Currently amended) The material removal device of claim 13 wherein the means for controlling [[the]] material removal ~~device~~ comprises a control system for collecting data corresponding to the sensed electrical response of the magnetoresistive elements, determining magnetoresistive element height data based on the sensed electrical responses, and comparing the magnetoresistive element height data to a target height.

15-16. (Canceled)

17. (Currently amended) The lapping device of claim ~~[[16]]~~ 13 wherein means for sensing an electrical response of each of the magnetoresistive elements comprises means for sensing a change in resistance.

18. (Currently amended) The lapping device of claim ~~[[16]]~~ 13 wherein means for sensing an electrical response of each of the magnetoresistive elements comprises means for sensing an amplitude.

19. (Currently amended) The lapping device of claim 14 wherein the means for sensing an electrical response of each of the magnetoresistive elements comprises:

a dummy magnetoresistive element on each slider to protect the working magnetoresistive element on each slider from electro-static discharge; and
means for sensing an electrical response of the dummy magnetoresistive element.

20. (Currently amended) A material removal device for lapping a plurality of sliders, the material removal device comprising:

a sensor associated with each slider, each sensor configured to sense an electrical response of a magnetoresistive element on the slider to a magnetic field, the electrical response changing as a function of height of the magnetoresistive element;

a fixture for holding the plurality of sliders;

a lapping mechanism for lapping a surface of the sliders;

a plurality of control drivers, wherein each slider has an associated control driver for individually adjusting each slider relative to the lapping mechanism; and

a control system for controlling lapping of the sliders by controlling the plurality of control drivers based on input received from the sensor associated with each slider.

21. (Previously presented) The material removal device of claim 20 wherein the electrical response of the magnetoresistive elements is a parameter related to a height of the magnetoresistive element.

22. (Previously presented) The material removal device of claim 20 wherein the sensor associated with each slider comprise a magnetoresistive element of the slider.

23. (Previously presented) The material removal device of claim 20 wherein the plurality of sliders comprises a bar of sliders.

24. (Previously presented) The material removal device of claim 23 wherein the control system controls lapping of the bar based on a height profile of the bar obtained from the sensor associated with each slider.

25. (Previously presented) The material removal device of claim 20 wherein the sensor associated with each slider comprises a dummy magnetoresistive element on each slider.

26. (Previously presented) The material removal device of claim 25 wherein the dummy magnetoresistive element on each slider is configured to sense a parameter related to a height of a magnetoresistive element on each slider, and wherein the control system controls lapping of the sliders based on the sensed parameter.

27. (Currently amended) A material removal device for lapping a plurality of sliders, the material removal device comprising:

- a lapping mechanism for lapping a surface of the sliders;

- a control system comprising:

- a magnetic field source for applying a magnetic field,

sensors on the plurality of sliders configured to sense an electrical response to the magnetic field that changes as a function of height of the sensors, and control software for correlating the sensed electrical responses to a target dimension for each slider; and a mechanism for individually removing each slider from the lapping mechanism when the target dimension for that slider is attained.

28. (Canceled)

29. (Currently amended) The material removal device of claim ~~[[28]]~~ 27 wherein the mechanism for individually removing each slider from the lapping mechanism comprises:

a plurality of control drivers associated with each slider; and
a control system for controlling the control drivers during lapping based on the ~~sensed parameter~~ electrical response and the target dimension.

30. (Previously presented) The material removal device of claim 27 wherein the sensors comprise magnetoresistive element on each slider.

31. (Previously presented) The material removal device of claim 28 wherein the sensors comprise dummy magnetoresistive elements associated with each slider.

32. (Previously presented) A material removal device for lapping a plurality of sliders, the material removal device comprising:

a lapping mechanism for lapping a surface of the sliders;

a dummy magnetoresistive element associated with each slider, the dummy magnetoresistive element configured to sense a parameter related to a target dimension; and
a mechanism for individually removing each slider from the lapping mechanism when the target dimension for that slider is attained.

33. (Currently amended) A material removal device for lapping a plurality of sliders, the material removal device comprising:

a fixture for holding the plurality of sliders;
a lapping mechanism for lapping a surface of the sliders;
a dummy magnetoresistive element on each slider configured to sense a parameter related to a height of a magnetoresistive element on each slider;
a plurality of control drivers, wherein each slider has an associated control driver for individually adjusting each slider relative to the lapping mechanism; and
a control system for controlling lapping of the sliders by controlling the plurality of control drivers based on the sensed parameters.